

CLAIMS:

1. A redundant switched full-duplex Ethernet type communication network comprising:

at least two independent elementary networks, each elementary network comprising at least one source subscriber equipment and at least one destination subscriber equipment;

at least one switch to connect the at least two independent elementary networks to each other through the at least one physical link through at least one switch, each equipment being connected to each of these elementary networks; and

a control configured to perform a frame by frame redundancy on each elementary network.

2. A network process according to claim 1, wherein there are two elementary networks.

3. A network according to claim 1, wherein the control performs the frame by frame redundancy by being further configured to, in transmission:

add a numbering field in each transmitted frame, to insert a frame number; and  
send the frame with the inserted frame member on each of the elementary networks.

4. A network process according to claim 3, wherein the control performs the frame by frame redundancy by being further configured to, in reception:

store the received frame number; and  
accept the frame only if its frame number has not already been received.

5. A network according to claim 4, in which the control is further configured to accept a frame only if it takes place within a given time window.

6. A network according to claim 4, wherein a virtual link concept is used; which is a conceptual view of a link from a source equipment to at least one destination equipment.

7. A network according to claim 6, wherein a virtual link number is accepted in the numbering field.

8. A network according to claim 6, in which a virtual link is characterized by:  
a transfer direction, the virtual link being single directional;  
a source equipment;  
one or plural items of destination equipment;  
a fixed passband;  
a maximum guaranteed time for transfer of packets from a source equipment to a destination equipment;  
a fixed path on the network; and  
a unique identifier.

9. A network according to claim 1 that is used for implementation of a redundant switched full-duplex Ethernet type communication network in avionics.

10. A redundant switched full-duplex Ethernet type communication network comprising:

at least two independent elementary networks, each elementary network comprising at least one source subscriber equipment and at least one destination subscriber equipment;  
at least one switch to connect the at least two independent elementary networks to each other through the at least one physical link through at least one switch, each equipment being connected to each of these elementary networks; and  
means for performing a frame by frame redundancy on each elementary network.

11. A network process according to claim 10, wherein there are two elementary networks.

12. A network according to claim 10, wherein the means for performing performs the frame by frame redundancy by being further configured to, in transmission:

add a numbering field in each transmitted frame, to insert a frame number; and  
send the frame with the inserted frame member on each of the elementary networks.

13. A network process according to claim 12, wherein the means for performing performs the frame by frame redundancy by being further configured to, in reception:  
store the received frame number; and  
accept the frame only if its frame number has not already been received.

14. A network according to claim 13, in which the means for performing further accepts a frame only if it takes place within a given time window.

15. A network according to claim 13, wherein a virtual link concept is used, which is a conceptual view of a link from a source equipment to at least one destination equipment.

16. A network according to claim 15, wherein a virtual link number is accepted in the numbering field.

17. A network according to claim 15, in which a virtual link is characterized by:

- a transfer direction, the virtual link being single directional;
- a source equipment;
- one or plural items of destination equipment;
- a fixed passband;
- a maximum guaranteed time for transfer of packets from a source equipment to a destination equipment;
- a fixed path on the network; and
- a unique identifier.

18. A network according to claim 10 that is used for implementation of a redundant switched full-duplex Ethernet type communication network in avionics.